WHAT IS CLAIMED IS:

1. A method of fabricating a semiconductor device in a silicon on insulator (SOI) substrate comprising the steps of:

a) providing a semiconductor body including a silicon supporting substrate, a silicon oxide layer supported by the substrate, and a silicon layer overlying the silicon oxide layer;

b) forming a semiconductor component in the silicon layer over a portion of the silicon oxide layer;

c) forming an etch mask on a surface of the substrate opposite from the component;

d) applying a preferential etchant to selectively etch the silicon in the substrate underlying the portion of the silicon oxide layer; and

e) providing a metal layer in the etched portion of the substrate to provide heat removal from the component during operation of the component.

2. The method as defined by claim 1 wherein the metal layer comprises a refractory metal.

3. The method as defined by claim 2 wherein the metal layer further comprises gold, copper or aluminum over the refractory metal.

4. The method as defined by claim 3 wherein the refractory metal comprises titanium tungsten or titanium nitride.

5. The method as defined by claim 1 wherein step c) includes forming a silicon nitride layer on the surface of the substrate and then preferentially masking and etching the silicon nitride layer to expose the silicon in the substrate underlying the portion of the silicon oxide layer.

6. The method as defined by claim 5 wherein the silicon nitride layer is preferentially etched with a dry plasma, and the silicon is preferentially etched with potassium hydroxide.

7. The method as defined by claim 6 wherein the silicon nitride is preferentially etched with a plasma and the silicon is preferentially etched with a plasma.

8. The method as defined by claim 5 and further including a step after step d) of preferentially etching the exposed portion of the silicon oxide layer.

9. The method as defined by claim 8 wherein the silicon oxide layer is etched with a buffered HF acid.

10. The method as defined by claim 8 wherein the silicon oxide layer is etched with an ion plasma.

11. The method as defined by claim 1 and further including a step after step d) of preferentially etching the exposed portion of the silicon oxide layer.

12. The method as defined by claim 1 and further including a step before step c) of abrading the substrate surface opposite from the component to reduce the thickness of the supporting substrate.

13. The method as defined by claim 1 wherein step a) includes providing a bonded silicon on insulator wafer.

14. The method as defined by claim 1 wherein step a) comprises providing a silicon wafer with implanted silicon oxide layer therein.

SUB A1

15. A semiconductor device comprising:

a) a semiconductor body including a silicon supporting substrate, a silicon layer supported by the substrate, and a silicon layer overlying the silicon oxide layer,

b) a semiconductor component formed in the silicon layer overlying a portion of the substrate which has been removed by etching, and

c) a metal layer in the portion of the substrate removed by etching, the metal layer providing heat removal from the component.

16. The semiconductor device as defined by claim 15, wherein the silicon oxide layer overlying the portion of the substrate is removed, the metal layer abutting the silicon layer.

17. The semiconductor device as defined by claim 16, wherein the metal layer comprises a refractory metal.

18. The semiconductor device as defined by claim 17, wherein the metal layer comprises gold, aluminum or copper over the refractory metal.

19. The semiconductor device as defined by claim 17, wherein the refractory metal is titanium tungsten or titanium nitride.

20. The semiconductor device as defined by claim 15, wherein the metal layer abuts the silicon oxide layer.

21. The semiconductor device as defined by claim 20, wherein the metal layer comprises a refractory metal.

22. The semiconductor device as defined by claim 21, wherein the metal layer comprises gold over the refractory metal.

23. The semiconductor device as defined by claim 21, wherein the refractory metal comprises titanium tungsten.